From the desk of…

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Memo

To: Board of Managers

From: Michael Younes, Director of Municipal Operations

CC: Shana R. Davis-Cook, Village Manager

Date: 7/5/2013

Re: Village Sidewalk Replacements

Background

At the Board's June regular meeting, staff was directed to contact the engineering firm who provided the Village's sidewalk construction detail to obtain further clarification of the load weight assumptions of the portion of the Village's brick sidewalks that cross driveways.

The original detail for base material of a sidewalk as it crosses a driveway calls for eight (8) inches of compacted CR-6 stone. This construction detail was designed to withstand non-commercial traffic driving across the sidewalk and a non-static load which is referred to as "light vehicular traffic". The design standard for light vehicular traffic was the direction provided to the engineer to by the Village's previous administration.

Based on my conversations with the engineering firm, they confirmed that sidewalk detail/specification was not designed to withstand heavy vehicular traffic loads. They also recommend that for added long-term durability a concrete base be used where vehicular loads are present.

Actual load values are not available because soil compaction testing and soil sampling would be required for each location; these specific tests were not done as part of the design phase.

In speaking with the Village's sidewalk contractor, they agreed that the engineer's assessment was correct that the sidewalks should be able to withstand light vehicular traffic loads, but the contractor recommends use of a concrete base for overall durability and to withstand heavier weighted loads.

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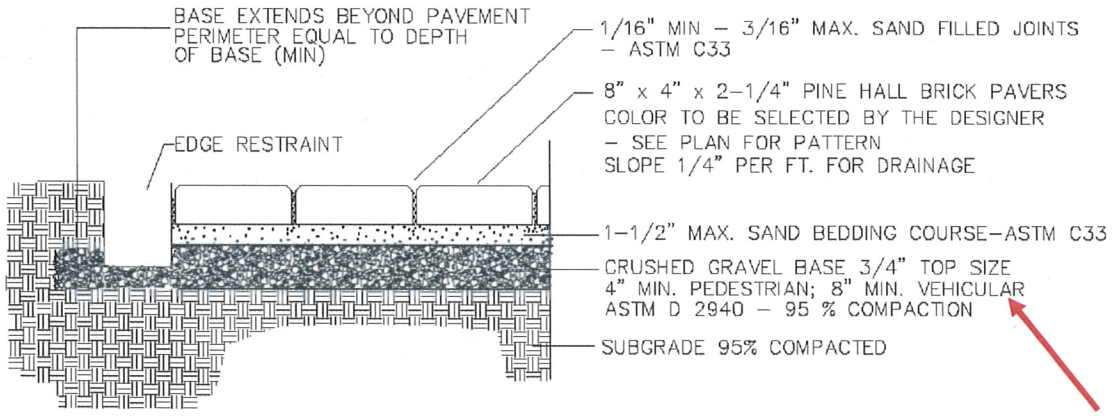
For the Board's reference I have included a construction detail from the brick manufacture below which outlines a minimum 4-inch aggregate base for pedestrian traffic and 8-inch aggregate base for vehicular traffic.



Pine Hall Brick – STANDARD FLEXIBLE BASE INSTALLATION

SCALE: NOT TO SCALE

Options to Consider

In light of the facts presented thus far and in order to preserve the integrity and stability of the newly replaced sidewalks, Board direction/affirmation is sought on the following:

a) Concrete sidewalks as they cross a driveway: At the Board's June meeting, staff was directed to advise the Village sidewalk contractor not to replace any sections of concrete sidewalk where the sidewalk crosses the driveway. *I recommend this be maintained for the remainder of the replacements where the existing material is concrete.*

b) Repair of sidewalk sections that have sunk: Currently there are about a dozen locations where sidewalks cross a driveway that have sunk lower than the grade on either side of the driveway. The majority of these are due to construction related damage. *I recommend replacing these sidewalk sections with a concrete base.* There is sufficient room within the year 3 sidewalk replacement budget to cover the modification costs.

c) Modify existing sidewalk base material going forward: In lieu of using a CR-6 base, a concrete base of the appropriate thickness would be

substituted; this base will be stronger than the CR-6 and will support heavier vehicle loads on the sidewalk. The bricks would then be installed on top of the concrete base using a sand setting bed.

Going forward, any brick section of sidewalk that crosses a driveway would be replaced using a concrete base, since the original contract was not bid using a concrete base, this would be classified as a change-order and the contractor has stated the additional cost for each driveway location is $530. There are a total of twenty-eight (28) locations where sidewalks cross driveways in year 3 and six (6) locations in year 4.[1] *I recommend a concrete base be used for replacements going forward. At this point I do not believe there will be a requirement for a supplemental appropriation.*

Modification of driveway sections previously replaced

There are a total of 161 locations where sidewalks cross driveways that have already been replaced. Within that 161, there are a small number that had preexisting concrete bases that would not need to be replaced. I offer the following options for the Board's consideration on the remaining sidewalk locations:

1. Replace all driveway sections in Year 3:

   The Village's sidewalk contractor has stated that it would cost approximately $750 per driveway location ($120,750 total) to go back and replace the existing locations. This would entail removing the brick sidewalk and base material, pouring a concrete base and coming back a second day to reinstall the brick. This price assumes that some new bricks will be required, if damaged in the excavation phase. A supplemental appropriation would be required in the amount of $120,750.

2. Replace all driveway sections spread over Years 3 and 4:

   Rather than incurring the full cost in one year, the cost could be spread over the remaining years of the sidewalk project. Overall costs to replace each driveway sections would not be affected. A supplemental appropriation would be required in the amount of $60,000 for year 3 replacements. Year 4 costs would be built into that year's scheduled replacements.

3. Replace driveway sections on an as-needed basis:

   Instead of replacing driveway sections in bulk, the Village sidewalk contractor and Public Works Department would replace these sections as needed. The same cost of $750 per driveway section would remain provided that 10 sections are completed in one mobilization. If Public Works was tasked with the replacements, I estimate that it would cost around $500 per section (cost for materials only).

[1] In June it was reported that there were 143 driveway crossings remaining this count included driveway crossings in concrete. Replacement of these crossings has since been discontinued.

4. Do nothing:

   Like option #3 nothing would be done until a driveway section fails. When replaced the method of replacement for sidewalks as they cross driveways would be maintained using the CR-6 base.

   If there was a building project scheduled, as part of the permitting process, it would be determined if the extent of the proposed work on private property could potentially damage the section of sidewalk that crosses the driveway. If so, special conditions could be required to ensure the sidewalk is not damaged, while outlining a process to repair any damage sustained.

   If further sections of sidewalk sections fail (outside of the two-year warranty period) as they cross a driveway, not related to construction projects, these sections would be repaired as part of the Public Works Departments' normal sidewalk maintenance operations. *I recommend these repairs going forward be done using a concrete base.*

Attachment

1) Response e-mail from engineering firm, RKK, regarding sidewalk detail

Younes, Michael

From: Robert Gillespie
Sent: Wednesday, June 12, 2013 11:34 AM
To: Younes, Michael
Subject: Brick Sidewalk Detail / Spec

Hi Michael.

As discussed, the brick sidewalk detail / spec provided previously was not intended for heavy vehicular use. We recommend a concrete base below the brick pavers where vehicular loads are present for long-term durability.

Thanks,
Rob

ROBERT J. GILLESPIE JR, P.E.
Senior Project Engineer

RK&K

www.rkk.com

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